THE NATIONAL ARBORETUM

—for research and education

Agricultural Research Service U.S. DEPARTMENT OF AGRICULTURE

Activities of the U.S. National Arboretum, Washington, D.C., are concerned primarily with educating the public regarding trees and shrubs and conducting research on these plants.

The National Arboretum is open to visitors from 8 a.m. to 4:30 p.m., Monday through Friday, through the year, and to 7 p.m. and on weekends during the principal display seasons of April through June and October–November.

The entrance to the National Arboretum is most easily found by driving Northeast on Maryland Avenue from the Capitol. This avenue ends within a short distance of the main gate.

Washington, D.C. April 1964

Main gates of the National Arboretum approached by Maryland Avenue from the Capitol. Aluminum gates are supported by posts of Indiana limestone.

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The U.S. National Arboretum occupies 415 scenic areas in the Mount Hamilton section of the District of Columbia. Its higher hills overlook the Capitol and the Washington Monument to the south, and, in the east, break in sudden drops to the Anacostia River.

The slopes of Mount Hamilton are color painted in April with 70,000 azaleas of more than a thousand varieties. Several hundred camellias flower earlier in the same month or in November. There is a demonstration planting of street trees; 300 or more varieties of crabapples; 700 kinds of holly; collections of dogwood, magnolia, firethorn, viburnum, crapemyrtle; a garden of boxwood, peonies, daylillies; and so on.

The Arboretum is an educational institution—an outdoor museum, in which one can study many kinds of trees, shrubs, and other plants, which are arranged in pleasing patterns.

It is a research institution. The Arboretum uses its plants for cultural observation and in breeding and testing programs. In cooperation with the New Crops Research Branch of the Department of Agriculture, it distributes new plants and seeds to other botanic gardens of this country. It maintains collections of living and dried plants for evaluation studies and for the determination of plant relationships. It identifies specimens from homeowners and nurserymen. It publishes research findings and provides leaflets for its visitors.

It is a place for recreation. It is not a picnic area and is not a park in the usual sense, but the Arboretum offers opportunity for the diversions of observation, study, and walking its many trails among planted displays and stream-edged woodlands. When the azaleas are in bloom, 20,000 persons may visit the Arboretum in a day. At all seasons, there is a steady flow of callers—tourists, scientists, gardeners, and schoolchildren.

BEGINNINGS

A century ago a few persons dreamed of an arboretum in the National Capital that would take a place among the world's noted botanic gardens. These gardens long have been known for their contributions to botany, agriculture, and the general sciences no less than for their public services in pleasurable education and recreation.

The first attempt to transform this dream to reality was in a plan developed in 1901 by a commission, which later became the National Commission of Fine Arts, for a combined botanic garden-arboretum in the Washington area. In 1927, the Congress approved a bill that directed the Secretary of Agriculture "to establish and maintain a national arboretum for purposes of research and education concerning tree and plant life."

The acquisition of land and early planning were directed by F. V. Coville and B. Y. Morrison, within the Division of Plant Exploration and Introduction. Dr. Coville was principal botanist of the Department of Agriculture. Mr. Morrison was principal horticulturist and head of the division before he became the first director of the Aboretum in 1951.

The National Arboretum now is administered by the Crops Research Division of the Agricultural Research Service. The Director of the Arboretum is assisted by a research, educational, and operational staff of 63 persons.

Entrance to the Morrison Azalea garden for display of the many varieties of Glenn Dale azaleas.

Camellia sasanqua '*Mine-No-Yuki.*'
A variety noted for its double white blossoms in early November.

Its entire development has been continuously aided by an Advisory Council of 15 public-spirited citizens appointed by the Secretary of Agriculture in accordance with provisions of the act of establishment.

A GROWING ARBORETUM

The National Arboretum is one of the younger additions to the group of large arboreta of the country. Although early progress of the Arboretum was repeatedly impeded by the depression and by the intervention of two wars, a firm groundwork in planning and in initial planting has been laid.

At the center of the National Arboretum's educational and research programs are its labeled and carefully documented plant collections. These collections are arranged in three basic groupings—generic or botanical groupings, gardenlike or naturalistic plantings, and demonstration plantings.

In 1946 and 1947, the first major planting project established 60,000 Glenn Dale hybrid azaleas on Mount Hamilton. Subsequent plantings of many other kinds of these showy plants have made the azaleas the most extensive and colorful of all plant groups.

Study collections of the various kinds of azaleas are of particular interest to horticulturists and homeowners. Evergreen types—the Glenn Dale hybrids, Satsuki azaleas, and kurumes—are centered in and around the Morrison azalea garden. Along the lower slopes of Mount Hamilton are the deciduous azaleas belonging to the Ghent, Mollis, and Knaphill (Exbury hybrid) groups. In the woodlands is an extensive collection of the native azaleas of the Eastern States.

Many groups and kinds of plants have been added. The Arboretum's camellia planting was started in Cryptomeria valley with a 1949 gift planting of the fall-blooming *Camellia sasanqua* and was gradually expanded on a northeastern slope and along trails leading to the nearby dogwood planting. A group of 200 plants of *C. oleifera* occupies a dry sunny slope. About 500 plants representing 150 varieties of *C. japonica* are scattered beneath high-trimmed oaks and tulip trees. More than 100 varieties of *C. sasanqua* are planted along trails and among stately Japanese temple trees.

Nearby, a central allee bordered by specimen plants of *Cornus florida* is set among hemlocks and informal plantings of other dogwoods. In the collection are about 65 kinds of dogwood, including the weeping form of *Cornus florida,* the bunchberry (*C. canadensis*), and the Chinese dogwood (*C. kousa chinensis*).

The collection of 250 or more crabapple varieties represents one of the larger test plantings in this country. Though the trees are still young, crabapple blossoms are beginning to add considerably to the flower display of mid-April, the effect being heightened by underplantings of daffodils.

A newly developed holly species trail is copiously planted with both common and rare species, as well as with interesting new hybrids. The trail leads to a

The Gotelli conifer collection. Rock outcrops will provide a natural setting for the 1,500 dwarf and slow-growing forms.

Among the magnolias.
A specimen of Magnolia soulangiana
'Verbanica'.

Fern valley.
A natural setting
for the study
of American ferns
and wildflowers.

unique six-sided teakwood bench from which you can view plantings of 25-foot-tall hybrid magnolias (*Magnolia virginiana* x *M. grandiflora*), deciduous hollies (*Ilex serrata* and *I. decidua*), and the adjacent crabapple planting.

Fern valley is a naturalistic planting of ferns and other plants native to eastern North America. Of special interest is a wall for lime-loving ferns, made from limestone rocks said to have been originally used in a rocky parapet constructed by Braddock's army.

It has been the good fortune of the National Arboretum that many of these plantings as well as some fine benches and other useful features have been contributed by the general public, individuals, nurserymen, and garden clubs and other interested organizations.

A recent gift, one of the most significant that has come to the Arboretum, has been a most comprehensive assemblage of dwarf and slow-growing conifers. The collection totals upwards of 1,500 plants in numerous varieties of *Abies*, *Cedrus*, *Chamaecyparis*, *Cryptomeria*, *Juniperus*, *Picea*, *Pinus*, *Taxus*, *Thuja*, *Tsuga*, and miscellaneous additional genera.

Although most of them originated in the United States and Europe, there are also specimens from Japan, Australia, New Zealand, and Canada. Some of the trees are only a few inches tall; others range up to 6 feet high. Besides the trees, the gift included bronze statuary, display labels for each plant, stonework, and an excellent horticultural library. These plantings now occupy a 5-acre hillside site in the northern part of the Arboretum.

Operational and research facilities also have been greatly improved during the past decade. Construction of 9½ miles of paved access roads was finished in 1958. The final unit of a brick-faced service court was added in 1959; and 1960–61 saw the addition of the cut-stone and aluminum gateways of the main entrance, a pedestrian entrance on Bladensburg Road, a single-story service residences at two of the gates, and a range of five 100-foot greenhouses. A headhouse with laboratory and refrigeration facilities is equipped for joint research-production purposes and serves for the multiplication of rare plant stocks, for the culture of breeding progenies, and for laboratory work in cytology and plant hardiness.

THE ADMINISTRATION AND RESEARCH BUILDING

The long-needed administration and research building, dedicated on April 27, 1964, has brought major construction to virtual completion. Planned in a contemporary style, this low but light and airy structure of glass, aluminum, and textured concrete was carefully designed to blend with, rather than overpower, its planted surroundings. It is located immediately inside the R Street gate of the Arboretum.

Providing some 27,000 square feet of floorspace, its basic pattern consists of a central single-story and basement structure 300 feet long with an auditorium projection in front and a two-story wing to the rear.

The colonnaded auditorium presents a unique appearance of being entirely water surrounded—an illusion of its actually floating being created by the cantilevered projection of its walls over a reflecting pool. The auditorium seats 250 persons and alternatively serves for public exhibitions.

A small conference room connects with the auditorium. A glass-walled lobby with central space for living-plant displays is crossed by a central corridor on which are situated administrative and research offices, a reference reading room, drafting and plant record rooms, and physiological and cytological laboratories.

The two-story rear wing houses the herbarium reference collections for taxonomic plant research, with facilities for the necessary fumigation, drying, mounting, and accessioning of newly acquired materials. Here, also, is a lecture room seating 60 persons.

The building is fully air conditioned, the herbarium being provided with subsidiary exhaust fans to achieve rapid air exchange following fumigation treatments and the auditorium having separate humidity control for the improved maintenance of living-plant exhibits.

The auditorium is used for a public horticultural meeting and for a plant exhibit.

A corner of the reading room.

Lobby and information desk of the Administration and Research Building.

Taxonomic studies concerned with the naming and identification of cultivated plants are an important part of the Arboretum's research activity.

Completion of the Arboretum's administration and research building provides space for public lectures on ornamental horticulture, plant exploration, botany, and related subjects.

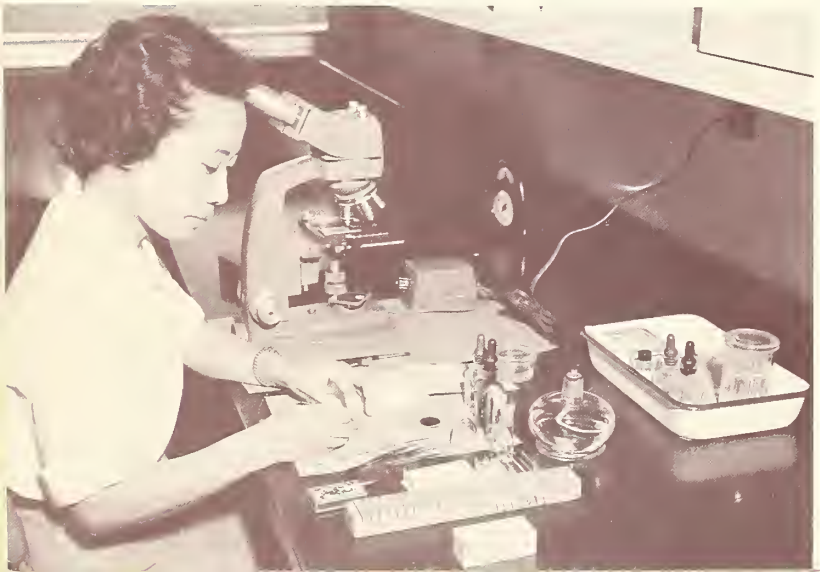
Exhibits to illustrate various phases of plant life and horticultural techniques are on display to the public.

Information leaflets, bulletins, and articles in horticultural and botanical publications are used to inform the public about the Arboretum's plantings and research findings.

Displays of spring flowers already attract many thousands of visitors each day at the height of the season, when volunteer guides assist with the tours of scheduled horticultural groups.

EDUCATIONAL AND RESEARCH PROGRAMS

Cytological studies are vital to plant breeding programs.



In keeping with the purposes for which the National Arboretum was established, woody plant research will always receive major emphasis in the Arboretum program. Future directions of research have been charted in terms of our major deficiencies of knowledge with respect to the identification, evaluation, and culture of economic or ornamental woody plants. Present emphasis lies chiefly in taxonomic and cytological studies concerned with the identification and classification of cultivated woody plants, the breeding of improved varieties, and the evaluation of existing, newly derived, or newly introduced cultivars. More limited attention is given to problems of plant propagation and to the assistance of projects in other agencies and institutions through the dissemination of needed plant stocks, materials, and information.

Essential to the botanical research program is the Arboretum herbarium reference collection of 350,000 dried plant accessions that derive from many areas of plant exploration, introduction, breeding, and investigational work within the Department of Agriculture as a whole.

Among several notable components of the herbarium collection are the extensive representations of the willows of North America, assembled by the late Carleton R. Ball, the recently presented den Boer collection of crabapple materials, and a strong representation of western native plants. The latter formed the basis of the Arboretum's "Medicinal Uses of Plants by Indian Tribes of Nevada," which has provided leads of considerable medicinal and industrial significance.

A byproduct of the taxonomic tasks of the herbarium was development of a new method of attaching herbarium specimens using plastics, a technique that has been adopted by many of the world's largest herbaria.

Breeding projects are directed to the improvement of a series of woody ornamental or crop plants important for their cultivation over relatively wide areas of the country. Current investigations involve holly, magnolia, viburnum, crapemyrtle, firethorn, hibiscus, camellia, and several additional genera. Available varieties and forms of these genera are being assembled. Cytogenetic and taxonomic studies yield the background for a sound approach to the production of new entities with improved characteristics—better hardiness, quality, and disease resistance. Promising selections are tested locally and by cooperating institutions before release for general use.

Through liaison with the New Crops Research Branch and its foreign explorations sponsored by Longwood Gardens of Kennett Square, Pa., and resulting from its own exchange and breeding programs, the National Arboretum annually distributes many hundreds of plants and plant propagations to other botanic gardens and experiment stations.

A gazebo provides a viewpoint above the Anacostia River. Oriental specimens dominate the surrounding planting.

An avenue of flowering dogwood. More than 60 forms of Cornus *can be grown in the Washington, D.C., area.*

Young crabapple trees in a planting now numbering about 250 varieties.

Late April scene among the azaleas of Mount Hamilton.

A gift tree is planted.

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